

REMARKS

I. Introduction

With the addition of new claims 21 to 32, claims 11 to 17 and 19 to 32 are currently pending in the present application, since claims 1 to 10 and 18 were previously cancelled. In view of the foregoing amendments and the following remarks, it is respectfully submitted that all of the presently pending claims are allowable, and reconsideration of the present application is respectfully requested.

II. Rejection of Claims 11 to 14, 16, 19, and 20 Under 35 U.S.C. § 103

Claims 11 to 14, 16, 19, and 20 were rejected under 35 U.S.C. 103(a) as unpatentable over the combination of U.S. Patent Application Publication No. 2001/0010424 (the “Osmer” reference), U.S. Patent No. 6,77,029 (the “Hamperl” reference), and Denuto et al., “LIN Bus and its Potential for use in Distributed Multiplex Applications” (the “Denuto” reference). It is respectfully submitted that the combination of the “Osmer,” “Hamperl,” and “Denuto” references does not render the present claims unpatentable, and the rejection should be withdrawn, for the reasons stated below.

To reject a claim under 35 U.S.C. § 103(a), the Office bears the initial burden of presenting a prima facie case of obviousness. *In re Rijckaert*, 9 F.3d 1531, 1532, 28 U.S.P.Q.2d 1955, 1956 (Fed. Cir. 1993). To establish prima facie obviousness, three criteria must be satisfied. First, there must be some suggestion or motivation to modify or combine reference teachings. *In re Fine*, 837 F.2d 1071, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988). This teaching or suggestion to make the claimed combination must be found in the prior art and not based on the application disclosure. *In re Vaeck*, 947 F.2d 488, 20 U.S.P.Q.2d 1438 (Fed. Cir. 1991). As clearly indicated by the Supreme Court, it is “important to identify a reason that would have prompted a person of ordinary skill in the relevant field to combine the [prior art] elements” in the manner claimed. *See KSR Int’l Co. v. Teleflex, Inc.*, 127 S. Ct. 1727 (2007). In this regard, the Supreme Court further noted that “rejections on obviousness cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.” *Id.*, at 1396. Second, there must be a reasonable expectation of success. *In re Merck & Co., Inc.*, 800 F.2d 1091, 231 U.S.P.Q. 375 (Fed. Cir. 1986). Third, the prior art reference(s) must teach or suggest all of the claim features. *In re Royka*, 490 F.2d 981, 180 U.S.P.Q. 580 (C.C.P.A. 1974).

Regarding claim 11, the Office Action asserts that the “Hamperl” reference discloses the feature of “a bus communications arrangement including a toroidal core store that stores a measured value” In support of this assertion, it points to a citation which includes the terms “toroidal-core store or toroidal memory.” (The “Hamperl” reference, column 8, lines 39 to 40.)

While the “Hamperl” reference may mention a term used in claim 11, it does not disclose the features of claim 11. It is well settled law that Applicants can be their own lexicographers, as long as terms are not defined in manner that is repugnant to common usage. In the present case, the specification describes the toroidal core store as a “ring buffer store.” Further, that it is such where “measured values are stored consecutively.” (*See Specification*, page 8 lines 3 to 12). Figures 6 and 7 further describe the organization of a toroidal core store. In this regard, it is noted that it is axiomatic that the terms in a claim are to be understood in view of the specification. (*See In re Weiss*, 26 U.S.P.Q.2d 1885, 1887 (Fed. Cir. 1993) (when interpreting a claim term or phrase, one must “look to the specification for the meaning ascribed to that term”; Board reversed) (unpublished decision); *In re Okuzawa*, 190 U.S.P.Q. 464, 466 (C.C.P.A. 1976) (“claims are not to be read in a vacuum, and limitations therein are to be interpreted in light of the specification”; Board reversed; emphasis in original) (citing *In re Royka*, 180 U.S.P.Q. 580, 582-83 (C.C.P.A. 1974) (claims are “not to be read in a vacuum” and “their terms still have to be given the meaning called for by the specification of which they form a part”; Board reversed; emphasis in original); and *In re Rohrbacher*, 128 U.S.P.Q. 117, 119 (C.C.P.A. 1960) (an “applicant is his own lexicographer and words used in his claims are to be interpreted in the sense in which they are used in the specification”; Board reversed))). To facilitate matters, independent claim 11 has been amended herein without prejudice to further clarify the term “toroidal core store.”

While the “Hamperl” reference mentions the term “toroidal-core store,” the reference does not disclose the toroidal-core store of claim 11. The only thing that the “Hamperl” reference suggests is that under the limited circumstance when data is recorded “cyclically while the vehicle is operating ... [t]he memory is then preferably embodied as a toroidal-core store or toroidal memory.” (The “Hamperl” reference, column 8, lines 34 to 40). A close review of the “Hamperl” reference makes clear that it does not disclose or suggest a toroidal core store which is structured as a ring buffer store and where values are stored consecutively, as provided in the context of the claimed subject matter and the specification.

The “Osmer” and the “Denuto” references do not cure, and are not asserted to cure this critical defect. For at least this reason, claims 11 and 19, as well as their respective dependent claims, are allowable.

Still further, the Office Action acknowledges that neither “Hamperl” nor “Osmer” discloses a single wire bus, and instead relies on the “Denuto” reference to cure this critical deficiency. It is asserted that “it would have been obvious to one of ordinary skill in the art to combine the teachings of Hamperl, Osmer and Denuto since this would allow the use of a single wire bus, thereby saving costs.” (Office Action, paragraph 4).

However, prior art references must be considered as a whole, including portions that teach away from the claimed subject matter. *W.L. Gore & Associates, Inc. v. Garlock, Inc.*, 721 F.2d 1540 (Fed. Cir. 1983). The “Osmer” reference relates to an **analog** signal-based system and, thus, **cannot be readily combined** with the single wire multiplexing approach of the “Denuto” reference, which refers to a bus-system applicable only to **digital signals**. For example, the “Osmer” reference describes an analog signaling approach in that the “force is measured by resistors 60 as an electrical signal that changes with the occupants weight and is transmitted over a wire harness 58 to air bag controller 36. The **voltage level** of each resistor can be correlated to a specific weight at each sensor location.” (See the “Osmer” reference, page 3, lines 9 to 14 (emphasis added) and Fig 1). One skilled in the art will readily recognize that the **voltage level** referred to in “Osmer” implies an analog signal because it is being correlated to a specific weight. Any other interpretation would be completely false because it would render the “correlation to a specific weight” impossible. For example, were “Osmer” dealing with a digital signal, then, at best, the voltage across a resistor would indicate whether there **is** or whether there **is not** a weight and not **what the weight is**.

In stark contrast, the “Denuto” reference refers to a bus-system applicable only to **digital signals**. Each wire in the bus provides only whether the signal is “high” or “low.” Analog and digital signaling is inherently incompatible, requiring elaborate conversion techniques, which are simply not provided. In fact, nothing in the “Osmer” reference suggests that such a converter is needed for the controller to interpret the signals or that the controller inputs or outputs digital signals. Indeed, the “Osmer” reference is completely silent with respect to the inclusion of such a converter, suggesting that an analog to digital converter is unnecessary for the system of the “Osmer” reference to work. The “Osmer” reference’s silence regarding such converters considered in light of that the sensors in the “Osmer” reference output an analog voltage signal corresponding to the weight of the seat

occupant, suggests that the system of the “Osmer” reference encompasses the use of analog devices in the controller to combine the analog signals from the sensors.

Still further, the Office Action does not provide articulated reasoning with some rational underpinning on why one skilled in the art would combine the cited references as suggested. Instead, it is conclusorily asserted that one would be thereby “saving costs.” This assertion is not only unsupported but far-fetched at best. It is respectfully submitted that obviousness rejections without documentary evidence “should only be taken by the examiner where the facts asserted to be well-known, or to be common knowledge in the art are capable of instant and unquestionable demonstration.” *MPEP* § 2144.03(A). In accordance with *MPEP* § 2144.03(C) and 37 CFR § 1.104(d) (2), it is respectfully submitted that an Examiner’s affidavit should be provided to support the obviousness rejections as to the suggestion that replacing some simple dedicated wires, with a system which may require analog-to-digital conversion circuitry, additional support circuitry for some form of time division multiplexing on the single wire, and then de-multiplexing circuitry at the other end, would be “saving costs.”

Accordingly, one skilled in the art would not modify the system of the “Osmer” reference to include the single bus system of the “Denuto” reference with the features of the “Hamperl” reference.

For all of the foregoing reasons, it is respectfully submitted that the combination of the “Hamperl,” “Osmer,” and “Denuto” references does not disclose or suggest all of the features recited in claim 11, so that the combination of the “Hamperl,” “Osmer,” and “Denuto” references does not render unpatentable claim 11.

Claims 12 to 14, and 16 ultimately depend from claim 11 and are therefore allowable for at least the same reasons as claim 12. *In re Fine*, supra (any dependent claim that depends from a non-obvious independent claim is non-obvious).

Claim 19 includes features like those of claim 11 and is therefore patentable for at least the same reasons as claim 11.

Claim 20 depends from claim 19 and is therefore allowable for at least the same reasons as claim 19. *In re Fine*, supra (any dependent claim that depends from a non-obvious independent claim is non-obvious).

Withdrawal of this obviousness rejection of claims 11 to 14, 16, 19, and 20 is therefore respectfully requested.

III. Rejection of Claim 15 Under 35 U.S.C. § 103

Claim 15 was rejected under 35 U.S.C. 103(a) as unpatentable over the combination of the “Hamperl” reference, the “Osmer” reference, the “Denuto” reference, and U.S. Patent Application Publication No. 2005/0172462 (the “Rudduck” reference). It is respectfully submitted that the combination of the “Hamperl,” “Osmer,” “Denuto,” and “Rudduck” references does not render claim 15 unpatentable, and the rejection should be withdrawn, for the reasons stated below.

Claim 15 depends from claim 11 and is therefore allowable for at least the same reasons set forth above in support of the patentability of claim 11, since the “Rudduck” reference does not correct the critical deficiencies noted above with respect to the “Hamperl,” “Osmer,” and “Denuto” references.

Withdrawal of this obviousness rejection of claim 15 is therefore respectfully requested.

IV. Rejection of Claim 17 Under 35 U.S.C. § 103

Claim 17 was rejected under 35 U.S.C. 103(a) as unpatentable over the combination of the “Hamperl,” “Osmer,” and “Rudduck” references. It is respectfully submitted that the combination of the “Hamperl,” “Osmer,” and “Rudduck” references does not render claim 17 unpatentable, and the rejection should be withdrawn, for the reasons stated below.

The Office Action acknowledges that neither the “Hamperl” reference nor the “Osmer” reference discloses or suggests the claim 17 feature of “causing the control unit to **assign to the at least one connecting element a respective address in accordance with a respective serial number** of the at least one connecting element.” The Office Action instead relies on the “Rudduck” reference to cure this critical deficiency. However, the references cannot be combined as suggested for at least the following reasons.

In the “Hamperl” reference, each sensor not only has a dedicated control unit but also a dedicated wire between the control unit and the sensor. For example, Figure 5 of the “Hamperl” reference illustrates sensors 1, 2, and 5. Control device 3 provides a dedicated control unit 33, 34, and 35 for each sensor respectively. Further, each sensor has a dedicated wire to its respective control unit. The fact that information is provided on a particular wire clearly implies that that information is from a particular sensor. Therefore, there is absolutely **no need or benefit** to assign addresses to connecting elements, as described in the “Rudduck” reference, since neither the wires nor the control units are shared. Thus, one

skilled in the art would not find it obvious to combine the “Hamperl” reference with the “Rudduck” reference as suggested by the Office Action.

Further, in the “Osmer” reference, all the sensors are scanned simultaneously by the controller to determine the proper airbag deployment. “At step 102, sensors 50A, B, C and D are scanned.” (*See*, the “Osmer” reference, paragraph [0037] and Figure 5.) Again, there is **no need or benefit** to using addressing because the analog data from the sensors is continuously available to the controller and no data is returned to the sensors from the controller. As provided in the discussion above, one skilled in the art would readily recognize that the “Osmer” reference deals with analog signals. The one-way continuous analog communication obviates the need for bus communications, making it unnecessary and unforeseeable to combine the “Osmer” reference with the “Rudduck” reference in the manner suggested by the Office Action.

Moreover, if a proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. *In re Gordon*, 733 F.2d 900, 221 U.S.P.Q. 1125 (Fed. Cir. 1984). The “Osmer” reference relates generally to the use of sensors to determine the deployment of vehicle airbags. Airbags must deploy quickly in order to be effective in a vehicular accident, so that it is extremely important that sensor data in the “Osmer” reference be quickly relayed to the controller to effectuate timely deployment of a vehicle airbag. In this sense, the continuous and simultaneous analog scanning of the seat sensors in the “Osmer” reference provides a fast and efficient method of receiving sensor readings to determine whether an airbag should be deployed. Any additional steps that would slow or delay the transmittal of seat sensor data to the controller, such as including a method for addressing individual sensors as described in the “Rudduck” reference, would thus be counter-productive and render the system of the “Osmer” reference unsatisfactory for its intended purpose, so that the modification of the “Osmer” reference proposed by the Office Action would have been unforeseeable and must rely on improper hindsight reasoning based on Applicant’s disclosure.

In this regard, it is noted that the “Rudduck” reference indicates that its purpose is to “provide a system of fasteners which can be part of an array, which can be individually addressable and which can enable an orderly, predictable way of accessing replaceable components in assemblies.” (*See* the “Rudduck” reference, paragraph [0006]). While the “Rudduck” reference goes on to provide an example of the use of such a system in an automobile, the example relates to use of individually addressable fasteners “in order to

remove a radio unit from a motor vehicle.” (*See id.*) However, as noted above, because the use of addressable bus communications system will slow and delay the deployment of a vehicle airbag, it would be counter-intuitive and not obvious to combine the “Osmer” and “Rudduck” references.

In contrast to the “Osmer” reference, the present invention provides for avoiding slowing and delaying of the deployment of a vehicle airbag. The present invention includes the transmission of one or more measured values from the same connecting element to the control unit, the transmission of which is initiated by a request message from the control unit. Transmitting several measured values from the same connecting element to the control unit requires less overhead and uses less bandwidth so as to improve vehicle airbag deployment time and calculation accuracy from multiple sensor values.

For all of the foregoing reasons, the combination of the “Hamperl,” “Osmer,” and “Rudduck” references does not disclose or suggest all of the features of claim 17, so that the combination of the “Hamperl,” “Osmer,” and “Rudduck” references does not render claim 17 unpatentable.

Withdrawal of the obviousness rejection of claim 17 is therefore respectfully requested.

V. New Claims 21 to 32

Claims 21 to 32 have been added herein. The new claims do not add new matter and are supported by the application, including Specification, as originally filed.

Claims 21 to 24 depend from claim 11 and are therefore allowable for at least the same reasons as claim 11.

Claims 25 to 27 ultimately depend from claim 17 and are therefore allowable for at least the same reasons as claim 17.

Claim 28 provides for assigning addresses to connecting elements based on transmitted bits of a serial number. As set forth above in support of the patentability of claim 17, the cited references do not disclose or suggest this feature. Moreover, claim 28 provides for repeated transmittals of bits of a serial number and responses from subsets of the connecting elements until only one of the connecting elements responds. None of the cited references discloses or suggests such a process. For all of the foregoing reasons, it is respectfully submitted that claim 28 and its dependent claim 29 are allowable.

Claims 30 to 32 ultimately depend from claim 19 and are therefore allowable for at least the same reasons as claim 19.

VI. Conclusion

In light of the foregoing, it is respectfully submitted that all of the presently pending claims are in condition for allowance. Prompt reconsideration and allowance of the present application are therefore earnestly solicited.

Respectfully submitted,

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